PANCHENKOV, G.M.; KOZLOV, L.L.; YAKOVLEV, V.I.; KATSOBASHVILI, V.Ya.; VASIL'YEV, L.A.; RYABUKHIN, Yu.S.

Polymerization of amylenes under the action of high-energy electrons. Izv. vys. ucheb. zav.; neft' i gaz 5 no.1:57-58 '62. (MIRA 16:11)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M. Gubkina.

Katsobashvili, Ya. R.

1??. DESTRUCTIVE HYDROGENATION OF HEAVY OILS BY USING SUSPENDED CATALYSTS IN COIL REACTORS. Katsobashvili, Ya.R. and [illegible], N.S. (Trud. Inst. Nefti (Trans. Inst. Petrol., Acad. Sci. U.S.S.R.), 1955, vol. 6, 100-108; abstr. in Chem. Abstr., 1956, vol. 50, 11653). Tungsten and iron sulphide on powdered coal (commercial catalyst) and molybdenum disulphide made in the laboratory were used as catalysts. Cracking did not depend on type and amount of catalyst but was controlled chiefly by temperature and contact time. Despite a large amount of hydrogen and turbulence in the reaction mixture the degree of hydrogenation was small. The gasoline and gas oil fractions contained large amounts of unsaturates and sulphur and the specific gravity of the residues was higher than that of the original products. Up to 20% of mazut and ?% of coal-pitch were converted to gas. C.A.

KATSOBASHVILI, YA.R.

USSR/Chemical Technology - Chemical Products and Their Application. Treatment of natural gases and petroleum. Motor fuels. Lubricants. I-13

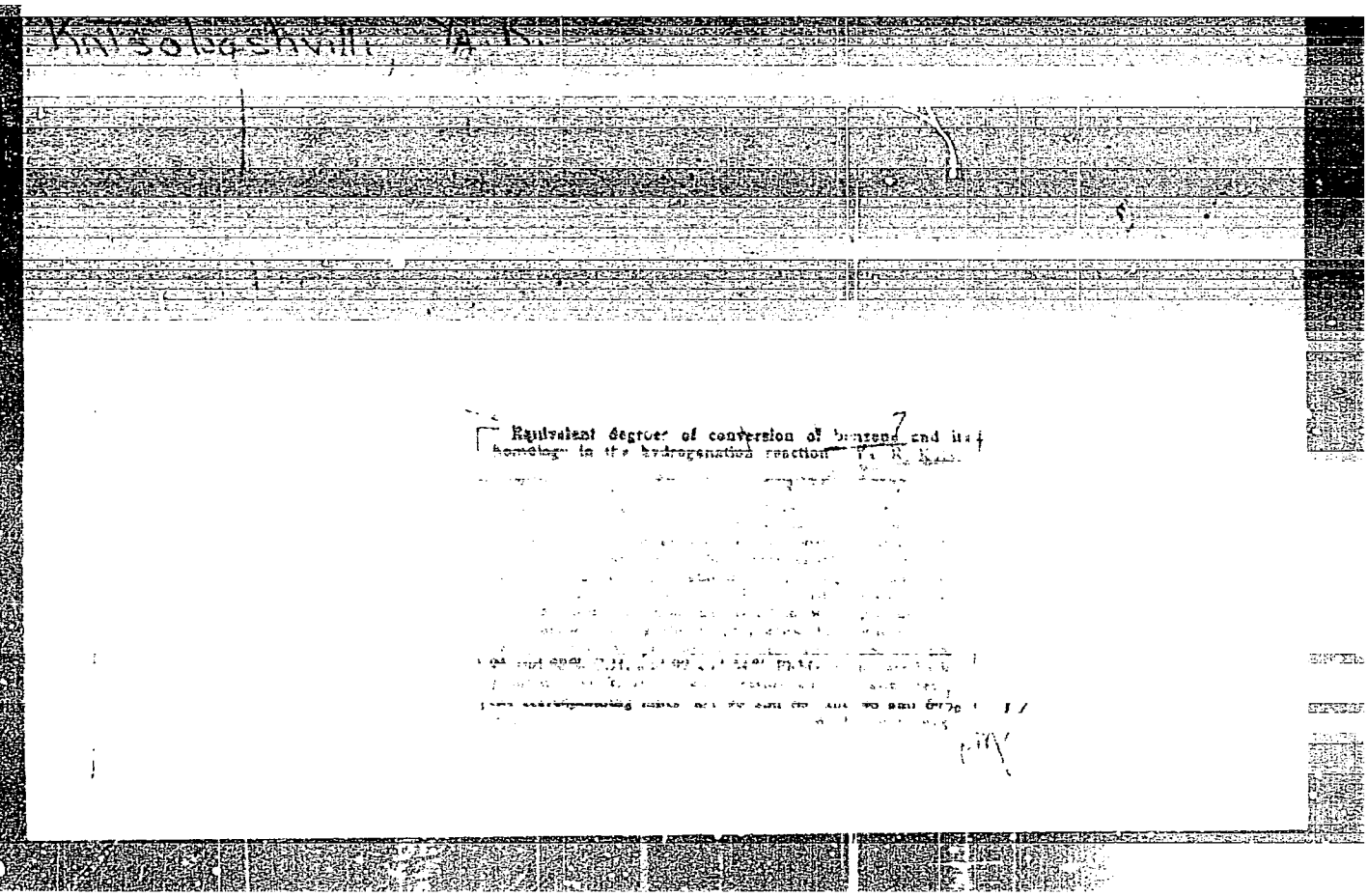
Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12936

Author : Katsobashvili Ya.R., Kurkova N.S.
Title : On the Extent of Hydrogenation of Aromatic Hydrocarbons in the Process of Destructive Hydrogenation of Petroleum Residues

Orig Pub : Khimiya, i tekhnol. topliva, 1956, No 3, 31-37

Abstract : Considered are the problems of thermodynamically possible degrees of conversion of aromatic hydrocarbons into naphthenic at different temperature and H_2 pressure, and of the comparative extent of their hydrogenation in the process of destructive hydrogenation of petroleum residues at a pressure of 30 and 300 atmospheres. It is shown that regardless of the pressure utilized on destructive hydrogenation of petroleum residues, it is not possible

Card 1/2



Equivalent degrees of conversion of benzene and its homologs in the hydrogenation reaction

KATSOBASHVILI, YA. R.

2

YA.R. Katsobashvili, A.M. Brun-Tsekhovoi (Khim. Tekhnol. Topliva Masel (Chem. Technol. Fuels & Lub., Moscow), 1957, 55-58). Equilibrium gas compositions are calculated for the conversion of methane with steam to obtain hydrogen or synthesis gas [illegible] 1-30 atm and a steam:gas ratio of [illegible] to

KATSOBASHVILI, YA.R.

5(3); 11(4) PHASE I BOOK EXPLOITATION SOV/2221

Akademiya nauk SSSR. Institut nefti

Trudy, t. 12 (Transactions of the Petroleum Institute, USSR. Academy of Sciences, Vol 12) Moscow, Izd-vo AN SSSR, 1958. 395 p. Errata slip inserted. 1,700 copies printed.

Ed.: S. R. Sergiyenko, Professor; Ed. of Publishing House: K. G. Miyasserov; Tech. Ed.: V. V. Golubeva.

PURPOSE: The book is intended for scientists, engineers, and technicians in the petroleum industry.

COVERAGE: This collection of articles describes the results of studies on the chemistry and technology of petroleum and gas conducted in the laboratories of the Petroleum Institute, Academy of Sciences, USSR, in 1956 and 1957. A new section "Petrochemical Synthesis and Technology of Petroleum" has been included in the collection of articles. A list of investigations published by the associates of the Institute in 1956 and 1957 and a list of dissertations for the Doctor's and Candidate's degrees presented in 1956 and 1957 at open sessions of the Academic Council of the Petroleum Institute, Academy of Sciences, USSR, are given.

KATSORASHVILI, Ya.R.; SIDOROVA, N.V.

Coke formation in catlaytic destructive hydrogenation of petroleum and petroleum remains. Zhur. prikl. khim. 31 no.8:1252-1258 Ag '58. (MIRA 11:10)

1.Institut nefti AN SSSR.
(Hydrogenation) (Petroleum products)

KATSOBASHVILI, Ya.R., KURKOVA, N.S.; KUKHTICHEVA, V.F.

Refining of fuel oil by destructive hydrogenation under pressure of 30 atmospheres in the presence of a circulating diluent. Trudy Inst.nefti 13 '59. (MIRA 13:12)
(Petroleum as fuel)

PAUSHKIN, Ya.M.; ORLOV, Kh.Ya.; KATSOBASHVILI, Ya.R.

Isomerization of n-paraffinic hydrocarbons (C_{15}-C_{18}). Izv. vys.ucheb.zav.; neft' i gaz 2 no.9:57-62 '59.
(MIRA 13:2)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti imeni akademika I.M.Gubkina, Institut neftekhimicheskogo sinteza AN SSSR.
(Isomerization) (Hydrocarbons)

11.4000

75678
SOV/80-32-10-27/51

AUTHORS: Katsobashvili, Ya. R., Volynskiy, N. P.

TITLE: Destructive Hydrogenation of Tuymazinskiy Region Petroleum Under Low Pressure

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2290-2292 (USSR)

ABSTRACT: Petroleum from Tuymazinskiy Region was hydrogenated over industrial aluminum/molybdenum catalyst #7360 (14% MoO_3) under 30 atm. pressure, at 500-540°. The investigated material had a specific gravity (d_4^{20}) 0.8470, sulfur content 1.34%, 300° fraction 46.7% by weight. The space velocity at 500-540° could be raised to 5 kg/liter without impairing the depth of hydrogenation and desulfurization. The yield of liquid products at the optimum space velocity was high(85 to 92% by weight) and so was the degree of conversion of high-molecular fractions; the yield of fraction boiling above 400° was only 3 to 5% by weight. Chemical

Card 1/2

Destructive Hydrogenation of Tuymazinskiy Region Petroleum Under Low Pressure

75678
SOV/80-32-10-27/51

and physical constants as well as yields of fractions are tabulated. There are 2 figures; 1 table; and 1 Soviet reference.

ASSOCIATION: Petroleum Institute of the Academy of Sciences, USSR (Institut nefti AN SSSR).

Card 2/2

Destructive Hydrogenation of Tuymazinskiy Region Petroleum Under Low Pressure

75678
SOV/80-32-10-27/51

and physical constants as well as yields of fractions are tabulated. There are 2 figures; 1 table; and 1 Soviet reference.

ASSOCIATION: Petroleum Institute of the Academy of Sciences, USSR (Institut nefti AN SSSR).

Card 2/2

KATSOBASHVILI, Ya.R.; VOLYNSKIY, N.P.

Destructive hydrogenation of Tuymazy petroleum at elevated temperatures and space velocities, and systems of refining sulfur-bearing petroleums. Trudy Inst.nefti 13:213-223 '59. (MIRA 13:12)
(Petroleum--Refining)

5.3300(B)
5.1190

69662

S/180/60/000/02/025/028
E071/E135

AUTHORS: Katsobashvili, Ya.R., Kuz'mina, T.N., Kurkova, N.S., Kukhticheva, V.F., Levitskiy, E.A., Likhobabenko, V.S., and Masolova, F.A. (Moscow)

TITLE: Mechanically Strong Aluminonickel Catalyst for the Process of Destructive Hydrogenation

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo,1960,Nr 2, pp 159-164 (USSR)

ABSTRACT: The process of destructive hydrogenation of crudes and residues under a moderate pressure in a circulating stream of a catalyst developed by the Petroleum Institute of the Academy of Sciences USSR (Ref 1) requires the application of catalysts which are resistant to wear. An investigation of the influence of conditions of preparation of aluminonickel catalysts, containing 10% of nickel oxide, on their mechanical strength is described in the present paper. The experiments were carried out on a small and pilot plant scale. The precipitation of mixed and separate aluminium and nickel hydroxides from 2N solutions of nitrates or sulphates was done with sodium hydroxide, controlling the pH of the medium, temperature

Card 1/3

69662

S/180/60/000/02/025/028
E071/E135

Mechanically Strong Aluminonickel Catalyst for the Process of Destructive Hydrogenation

precipitation. The activity of the catalysts prepared was tested under standard conditions of destructive hydrogenation at a moderate pressure (Ref 1) of sulphurous Tuymazin crude oil and compared with that of an industrial aluminomolybdenum catalyst. The experimental results are given in Table 6. It was found that in respect of their activity aluminonickel catalysts are not inferior to industrial aluminomolybdenum catalyst Nr 7360: the yield of liquid products amounted to 87-90%, the yield of coke to 2.7-3.8% and the degree of desulphurization to 76-88%. It is concluded that aluminonickel catalyst prepared under optimum conditions possesses satisfactory mechanical properties and activity for the process of destructive hydrogenation under a moderate pressure (30 atm).

Card 3/3

There are 6 tables and 7 references, of which 5 are Soviet, 1 is English and 1 is German.

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LIKHOBARENKO, V.S.; LEVITSKIY, M.A.; GOLOSOV, S.A.; MASOLOVA, F.A.; NAZAROV, G.I.

Apparatus for washing filter residues of high hydraulic resistance. Khim.prom. no.4:340 Je '60. (MIRA 13:8)

(Filters and filtration)

KATSOBASHVILI, Ya.R. (Moskva); KURKOVA, N.S. (Moskva); LEVITSKIY, E.A. (Moskva); LIKHOBABENKO, V.S. (Moskva); MASOLOVA, V.A. (Moskva)

Preparing a mechanically resistant alumina-molybdenum catalyst. Izv. AN SSSR. Otd. tekh. nauk. Met.i topl. no.5:234-238 S-O '60. (Catalysts) (Molybdenum compounds)

KATSOBASHVILI, Ya.R. (Moskva), [illegible] A.A. (Moskva)

Activity of aluminum-molybdenum catalysers with a small content of MoO_3 in the process of destructive hydrogenation of petroleum at low pressures. Izv. Akad. nauk SSSR, Otd. tekh. nauk. Met. i topl. no.6:173-177 N-D '60. (MIRA 13:12)
(Hydrogenation) (Catalysts)

S/078/60/005/012/006/016
B017/B064

AUTHORS: Katsobashvili, Ya. R., Kurkova, N. S., Levitskiy, E. A.

TITLE: Stability of the Hydroxide Precipitate of Pentavalent Molybdenum at Different pH Values of the Medium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 12, pp. 2681-2686

TEXT: The effect of the pH of the precipitating medium upon the dissolution process of molybdenum(V)hydroxide was investigated. The solutions of pentavalent molybdenum were prepared by reducing hydrochloric ammonium molybdate solutions by metallic aluminum. Molybdenum(V)hydroxide was precipitated from these solutions at pH 5.0-6.5. At pH 8-10, molybdenum(V)-hydroxide is dissolved again. The potentiometric titration curve of Mo^{5+} solutions is given in Fig. 1. The dissolution of molybdenum(V)-hydroxide in alkaline medium was found to be due to the oxidation of Mo^{5+} to Mo^{6+}. Molybdenum(V)hydroxide is dissolved at pH higher than 7.

Card 1/2

Stability of the Hydroxide Precipitate of Pentavalent Molybdenum at Different pH Values of the Medium

S/078/60/005/012/006/016
B017/B064

The dissolution of molybdenum(V)hydroxide is independent of time and temperature. The pH is, however, the primary factor. When heating molybdenum-(V)hydroxide from 20 to 50°C, it is rapidly dissolved; when the temperature is further increased to 70°C, no essential change of the dissolution rate occurs. At pH below 7, the precipitation of molybdenum(V)hydroxide is quantitative. The dissolution rate of molybdenum(V)hydroxide is independent of the ammonium chloride concentration in the solution. On the basis of the results obtained, a new procedure of preparing thermostable aluminum-molybdenum catalysts with good mechanical strength is suggested. There are 5 figures, 2 tables, and 13 references: 9 Soviet and 2 German.

SUBMITTED: September 30, 1959

Card 2/2

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LIKHOBABENKO, V.S.; LEVITSKIY, E.A.; KUZ'MINA, T.N.; KUKHTICHEVA, V.F.; MOSOLOVA, F.A.

Preparation of mechanically strong catalysts based on aluminum oxide. Trudy Inst. nefti 14:160-186 '60. (MIRA 14:5)
(Catalysts)
(Aluminum oxide)

5.1190

7839
SOV/20-33-3-40/47

AUTHORS: Katsobashvili, Ya. R., Kurkova, N. S., Levitskiy, S. A.

TITLE: Brief Communications. Sublimation of Molybdenum Oxide From Alumino-Molybdenic Catalysts

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3, pp 734-736 (USSR)

ABSTRACT: Alumino-molybdenic catalysts 16M and 18M prepared by joint precipitation, and catalyst 22M prepared by separate precipitation of aluminum hydroxides and lower valencies molybdenum, sustained, without sublimation or physical changes, after 270 hr heating at 800° C or at rapid heating to 950° C. Catalysts 38M to 41M prepared by saturating aluminum hydroxide with ammonium molybdate, and commercial catalyst 736OM similarly prepared from aluminum oxide lost by sublimation, a considerable amount of the original MoO_3 content on a short heating to above 800° C. The catalysts became caked and completely lost their mechanical resistance.

Card 1/2

Brief Communications. Sublimation of Molybdenum Oxide From Alumino-Molybdenic Catalysts

78239
SOV/80-33-3-40/47

There are 6 references, 1 U.S., 5 Soviet. The U.S. reference is: A. A. Burton & others, Chem Eng. Progr., 44, 3, 195 (1948).

SUBMITTED: April 24, 1959

Card 2/2

KATSOBASHVILI, Ya.R.; GOLOSOV, S.A.

Kinetics of the destructive hydrogenation of asphalt from Romashkino oil under a hydrogen pressure of 30 atm. Zhur. prikl. khim. 33 no.6: 1369-1374 Je '60. (MIRA 13:8)
(Hydrogenation) (Asphalt)

KATSOBASHVILI, Ya.R.; POPOV, A.A.

Effect of the content of nickelous oxide on the activity of alumina nickel oxide catalysts in the process of destructive hydrogenation at low pressures. Zhur.prikl.khim. 33 no.7: 1607-1613 Jl '60. (MIRA 13:7)
(Hydrogenation) (Nickel oxide)
(Catalysts)

S/080/60/033/007/023/024/XX
D270/D304

AUTHORS: Katsobashvili, Ya.R. and Popov, A.A.

TITLE: Influence of molybdenum oxide content on the activity of aluminomolybdenum catalysts during destructive hydrogenation under low pressure

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 7, 1960, 1613-1617

TEXT: The authors studied the optimum content of MoO_3 in aluminomolybdenum catalysts; according to Ya.R. Katsobashvili (Ref. 1: Sb. Pererabotka neftyanikh ostatkov (Treatment of petroleum residues), Gosinti, 190, 1958), this question largely governs the profitable use of such catalysts in the process of the destructive hydrogenation of petroleum residues. Tuymazy petroleum was hydrogenated in the presence of catalysts containing variable proportions of Al_2O_3 and MoO_3. The procedure devised by G.V. Antipina et al (Ref. 3: Vestn. Mosk. gos univ. 3-4, 119, 1946) was followed, with the following experimental conditions: Reactor dimensions - 250 cm^3; pressure

Card 1/3

Influence of molybdenum oxide...

- 30 atm; temperature - 432°; hydrogen consumption - 1000 l/kg of raw material; duration of reaction - 2 hrs. The results are given in graphic form. Assuming the conversion of material to be a first-order reaction, the catalyst activity was assessed from α' - the reaction-velocity constant - as defined by

$$\alpha' = v_s \ln \frac{1}{1 - y} - v_s \cdot \beta \cdot y,$$

where α' and β are constants, $v_s = v_o \frac{d}{f \cdot s_{\mu} d_H}$ is the rate of supply of material on one surface of the catalyst; f is the accessibility coefficient for the active surface; s_{μ} is the specific surface; and d_H is the weight of 1 m^3 of dry catalyst. The constants α' and β were determined graphically. β has a value of 1.03, and α', which is proportional to the reaction-velocity constant, depends on the MoO_3 content of the catalyst, thus: 1.0% - 0.8×10^{-3}; 5.7% - 2.3×10^{-3}; 14.6% - 2.7×10^{-3}; 34.4% - 4.2×10^{-3}. The authors hence concludes that these data explain why the addition of up to 10% MoO_3 to catalyst samples increases their volumetric

Card 2/3

KATSOBASHVILI, Ya. R. (Moskva); POPOV, A.A. (Moskva)

Structure and activity of aluminum-nickel and aluminum-molybdenum catalysts in the hydrogenization of petroleum under pressure of 30 at. Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.2:173-181 Mr-Ap '61. (MIRA 14:4)
(Hydrogenation)
(Catalysts)

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LIKHORABENKO, V.S.; LEVITSKIY, E.A.; KUZ'MINA, T.N.; KUKHTICHEVA, V.F.; MASOLOVA, F.A.

Effect of the conditions under which the hydroxide precipitates on the mechanical durability of aluminum oxide. Izv. AN SSSR. Otd. khim. nauk no.2:245-250 F '61. (MIRA 14:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Alumina)

KATSOBASHVILI, Ya.R. (Moskva); POPOV, A.A. (Moskva)

Effect of the composition and structure of catalysts on coke formation in the destructive hydrogenation of petroleum at low pressures. Izv.AN SSSR.Otd.tekh.nauk.Met.i topl. no.5:137-143 S-O '61. (MIRA 14:10)

(Hydrogenation) (Coke)

KATSOBASHVILI, Ya.R.; GARBER, Yu.N.; EL'BERT, E.I.; BELENKO, Z.G.;
Prinimal uchastiye SMIRNOV, V.K., laborant

Hydrocracking of high boiling fractions of coal tar in a catalyst stationary bed under the pressure of 30 atoms.
Koks i khim. no.10:48-52 O '61. (MIRA 15:1)

1. Institut neftekhimicheskogo sinteza AN SSSR (for Katsobashvili).
2. Kuznetskiy filial Vostochnogo uglekhimicheskogo instituta (for Garber, El'bert, Belenko).

(Cracking process)
(Coal tar)

KATSOBASHVILI, Ya.R.; BRUN-TSEKHOVOY, A.R.; SHCHEKIN, V.V.; SLADKOVSKAYA, I.R.

Microspherical nickel-alumina catalysts for the conversion of natural gas flown through. Kin.i kat. 2 no.4:567-573 Jl-Ag '61. (MIRA 14:10)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Gas, Natural) (Catalysis)

KATSOBASHVILI, Ya.R.; KURKOVA, N.S.; LEVITSKIY, E.A.; ROMANOVSKIY, B.V.

Preparation of active spherical aluminum oxide. Khim.prom. no.1: 26-30 Ja '62. (MIRA 15:1)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Aluminum oxide)

KATSOBASHVILI, Ya.R.; BRUN-TSEKHOVOY, A.R.; CHERNYSHEVA, M.M.

Production of low-sulfur fuels for boilers by hydrogenation of high-sulfur petroleum under the pressure of 30 atm. Khim. i tekh.topl.i masel 7 no.8:17-24 Ag '62. (MIRA 15:8)

1. Institut neftekhimicheskogo sinteza AN SSSR.
(Petroleum as fuel)

KATSOBASHVILI, Ya.R.; BELOVA, G.M.; CHURAYEVA, G.D.

Interaction of water vapor with coke deposits on catalysts for the process of destructive hydrogenation under low pressure. Zhur.-prikl.khim. 36 no.1:160-166 Ja '63. (MIRA 16:5)
(Coke) (Catalysts) (Hydrogenation)

KATSOBASHVILI, Ya.R.; EL'BERT, E.I.; SMIRNOV, V.K.; Prinimali uchastiye: BELENKO, Z.G.; STRAKHOVA, M.A.

Hydrocracking of pitch distillates. Khim. i tekh.topl. i masel 9 no.2:5-11 F '64. (MIRA 17:4)

1. Institut neftekhimicheskogo sinteza AN SSSR.

BRUN-TSEKHOVOY, A.R.; KATSOBASHVILI, Ya.R.; YEVREINOV, A.N.

Certain regularities in the separation of particles in a fluidized bed. Khim. i tekh. topl i masel 9 no.8:9-13 Ag '64. (MIRA 17:10)

1. Institut neftekhimicheskogo sinteza AN SSSR.

KATSOBASHVILI, Ya.R.; MIKHEYEV, G.M.

Concerning the preparation of pilled active aluminum oxide.
Nefteper. i neftekhim. no.12:11-15 '64. (MIRA 18:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.

KATSOBASHVILI, Ya.R.; MIKHEYEV, G.M.

Activity of spherical carbonization catalysts. Khim. i tekh. topl. i masel 9 no.12:28-32 D '64. (MIRA 18:2)

1. Institut neftekhimicheskogo sinteza AN SSSR.

NATSOBASHVILI, Ya.R.; EL'BERT, E.I.

Hydrogenation of a raw anthracene fraction at 50 atm. pressure on an industrial aluminum-cobalt-molybdenum catalyst. Zhur. prikl. khim. 38 no.4:930-936 Ap '65. (MIRA 18:6)

1. Institut neftekhimicheskogo sinteza AN SSSR i Kuznetskiy filial Vostochnogo uglekhimicheskogo nauchno-issledovatel'skogo institut[illegible].

KATSOBASHVILI, Ya.R.; EL'BERT, F.I.

Hydrocracking of absorption oils. Khim. i tekh. topl. i masel 10 no.10:8-11 O '65. (MIRA 18:10)

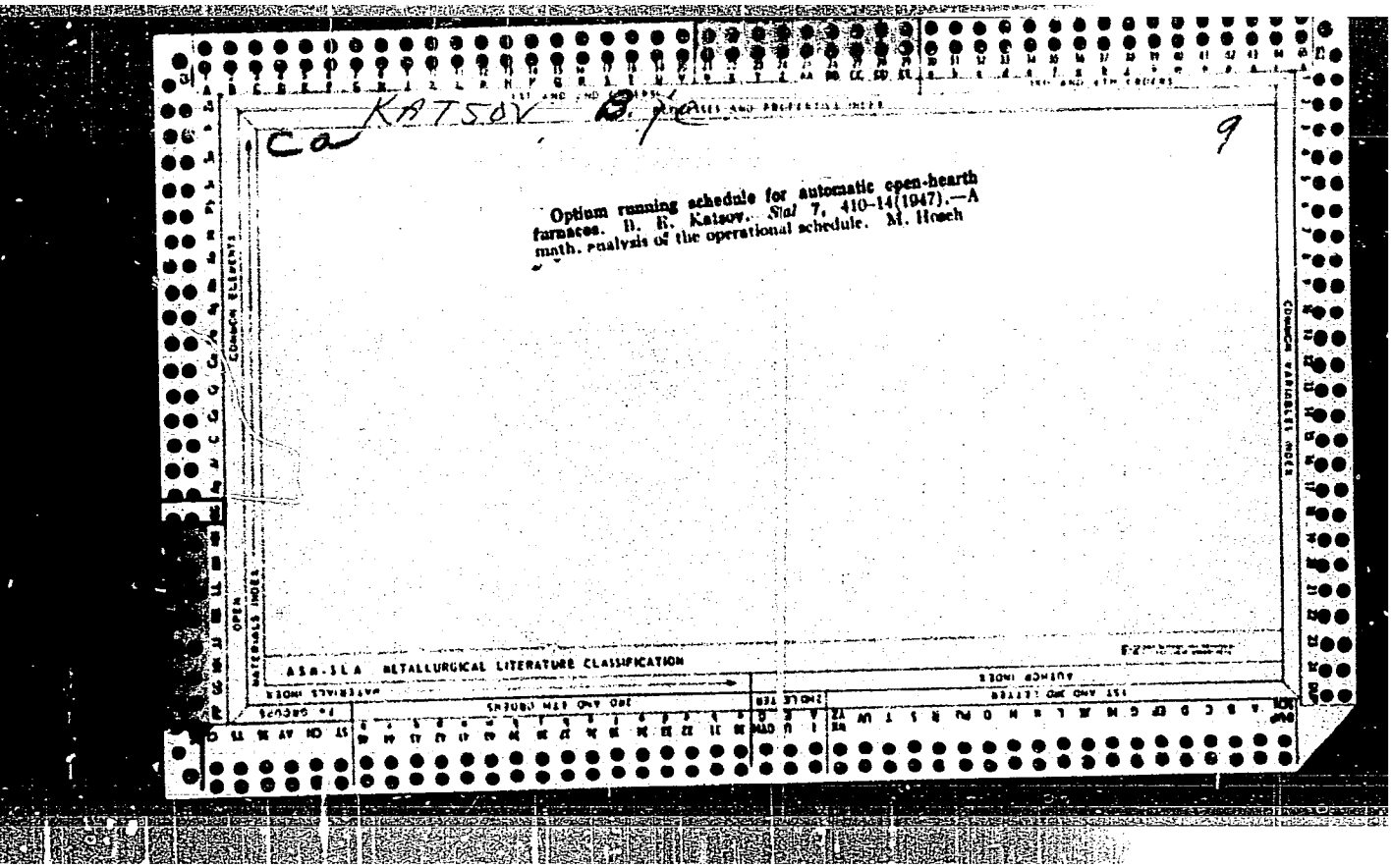
BOCHKOV, V.I.; BRIGADIRENKO, V.G.; BRUN-TSEKHOVOY, A.R.; GOLOSOV, S.A.; ISTOMIN, A.P.; KATSOBASHVILI, Ya.R.; LASKOVENKO, E.K.; MIGUR, V.V.

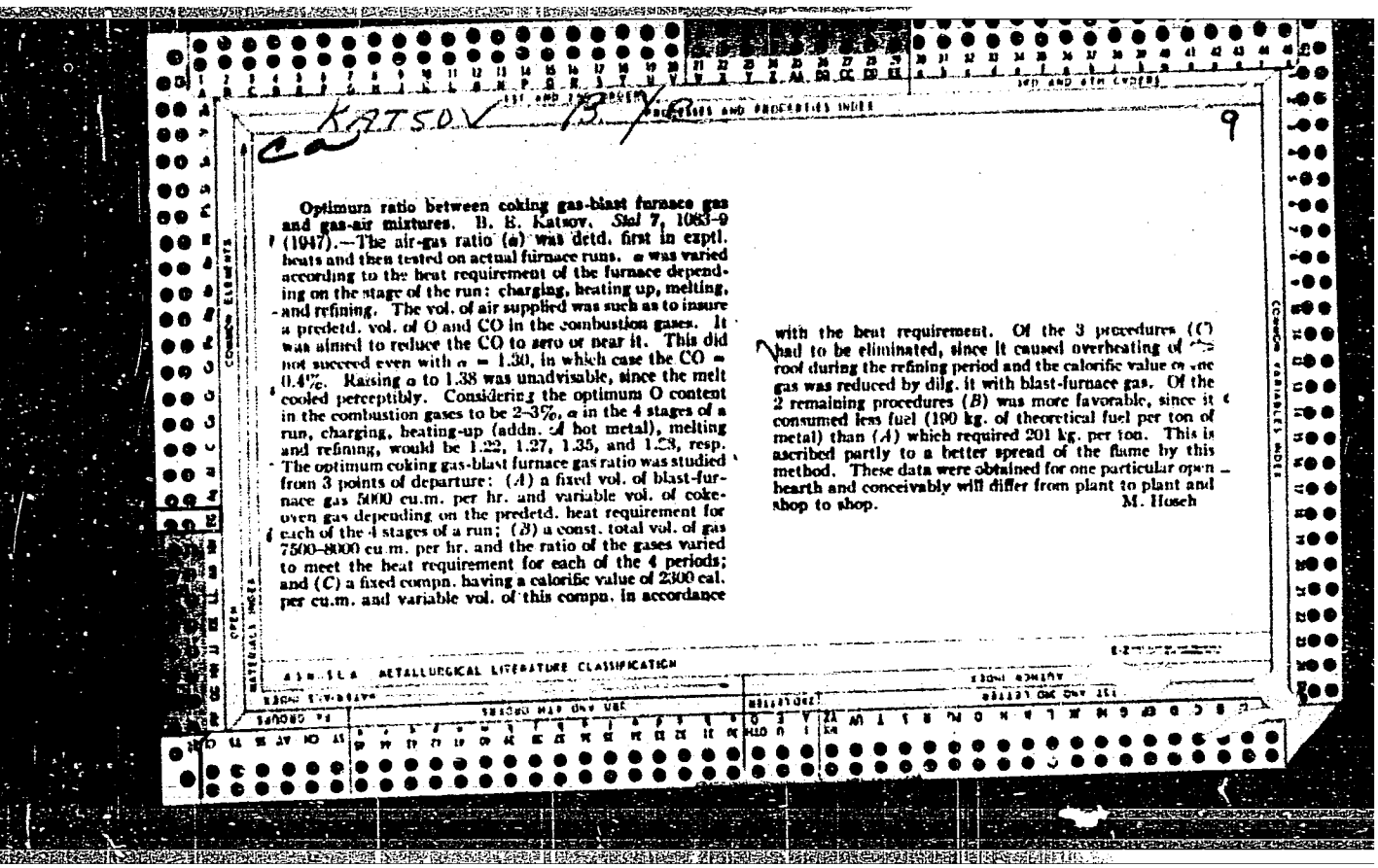
Auger flowmeter for loose materials. Mash. i neft. obor. no.7:33-35 '65. (MIRA 18:12)

1. Kombinat No.16, g. Angarsk.

KUZNETSOV, V.I., inzh.; KATSON, V.D., inzh.

Increase in the switching capability and overvoltage limiting of 110 kv. oil-filled switches. Elektrotekhnika 34 no.10:3-6 O '63. (MIRA 16:11)





Optimum ratio between coking gas-blast furnace gas and gas-air mixtures. B. B. Katsov. *Stal* 7, 1083–9 (1947).—The air-gas ratio (α) was detd. first in exptl. heats and then tested on actual furnace runs. α was varied according to the heat requirement of the furnace depending on the stage of the run: charging, heating up, melting, and refining. The vol. of air supplied was such as to insure a predetd. vol. of O and CO in the combustion gases. It was aimed to reduce the CO to zero or near it. This did not succeed even with α = 1.30, in which case the CO = 0.4%. Raising α to 1.38 was unadvisable, since the melt cooled perceptibly. Considering the optimum O content in the combustion gases to be 2–3%, α in the 4 stages of a run, charging, heating-up (addn. of hot metal), melting and refining, would be 1.22, 1.27, 1.35, and 1.23, resp. The optimum coking gas-blast furnace gas ratio was studied from 3 points of departure: (*A*) a fixed vol. of blast-furnace gas 5000 cu.m. per hr. and variable vol. of coke-oven gas depending on the predetd. heat requirement for each of the 4 stages of a run; (*B*) a const. total vol. of gas 7500–8000 cu.m. per hr. and the ratio of the gases varied to meet the heat requirement for each of the 4 periods; and (*C*) a fixed compn. having a calorific value of 2300 cal. per cu.m. and variable vol. of this compn. in accordance with the heat requirement. Of the 3 procedures (*C*) had to be eliminated, since it caused overheating of the roof during the refining period and the calorific value of the gas was reduced by dilg. it with blast-furnace gas. Of the 2 remaining procedures (*B*) was more favorable, since it consumed less fuel (190 kg. of theoretical fuel per ton of metal) than (*A*) which required 201 kg. per ton. This is ascribed partly to a better spread of the flame by this method. These data were obtained for one particular open-hearth and conceivably will differ from plant to plant and shop to shop.

M. Hosch

KATSOV, B.Ye.

Automating thermal and technological processes in the ceramic industry. Stek.i ker. 17 no.7:12-17 Jl '60. (MIRA 13:7)

(Ceramic industries) (Automatic control)

KATSOV, E.N.

AID P - 699

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 10/18

Authors : Shergin, N. A., Eng. and Katsov, E. N., Eng.

Title : Electric diagram accelerating metal working operations

Periodical : Energetik, 2, 8, 20-21, Ag 1954

Abstract : The author briefly describes his arrangement which he added to the existing electric circuit of a planer. One diagram.

Institution : None

Submitted : No date

KATSOV, M.

Change the method of determining the rate of compensation for insured agricultural crops. Fin. SSSR 19 no.9:32-38 S '58.
(Insurance, Agricultural) (MIRA 11:10)

GULYAYEV, F.; KATSOV, M.

Make the procedure for determining loss caused by crop damage more accurate. Fin. SSSR 37 no.5:55-56 My '63. (MIRA 16:5)
(Insurance, Agricultural--Crops)

KATSOV, M.Sh., inzh.; SARACHINSKIY, L.N., inzh.

Construction of the drainage system of TKH ion-exchanger filters. Elek. sta. 35 no.3:82-83 Mr '64. (MIRA 17:6)

MEZENCHUK, Ye.A.; KRASOV, V.M.; SPIRIDONOVA, M.[illegible]; KATSOVA, L.B.

Change in the blood protein fractions during the treatment of rheumatic fever. Zdrav. Kazakh. 23 no.4:28-32 '63.
(MIRA 17:5)

1. Iz kafedry fakul'tetskoy terapii (zaveduyushchiy - dotsent Ye. A. Mezenchuk) Alma-Atinskogo meditsinskogo instituta i biokhimicheskoy laboratorii (zaveduyushchiy - V.M. Krasov) Kazakhskogo nauchno-issledovatel'skogo veterinarnogo instituta.

KATSOVA, L. B., Cand Biol Sci (diss) -- "Examination of the antihelminthic activity of various fractions of squash seeds, and the electrophoretic characteristics of the protein component of the blood serum of dogs in experimental multiceptosis". Moscow, 1959. 17 pp (All-Union Inst of Helminthology im Acad K. I. Skryabin, All-Union Order of Lenin Acad Agric Sci im V. I. Lenin), 150 copies (KL, No 10, 1960, 128)

KATSOVA, O. N., CHUSHKIN, P. I. and SHMYSLEVSKIY, YU. D.

"Certain Problems of Gas Dynamics" a paper presented at the Conference on Methods of Development of Soviet Mathematical Machine-Building and Instrument-Building, 12-17 March 1956.

Translation No. 596, 8 Oct 56

PHASE I BOOK EXPLOITATION SOV/5608

Katskova, O. N., I. N. Naumova, Yu. D. Shmyglevskiy, and N. P. Shulishnina

Opyt rascheta ploskikh i osesimmetrichnykh sverkhzvukovykh techeniy gaza metodom kharakteristik (Computation Practice of Horizontal and Axially Symmetric Supersonic Gas Flow by the Method of Characteristics) Moscow, Vychislitel'nyy tsentr AN SSSR, 1961. 57 p. 1,100 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Vychislitel'nyy tsentr.
Resp. Ed.: Yu. D. Shmyglevskiy; Tech. Ed.: A. I. Korkina.

PURPOSE : This book is intended for those interested in gas dynamics and analytical computing methods in the investigation of axially symmetric supersonic flow

COVERAGE: The book deals with the application of the method of characteristics for calculating partial derivatives of the hyperbolic type used in the investigation of axially symmetric supersonic flows. Vychislitel'nyy tsentr AN SSSR (Computer

Card 1/3

124-58-9-9624

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 9, p 23 (USSR)

AUTHORS: Katskova, O. N., Shmyglevskiy, Yu. D.

TITLE: Axisymmetric Supersonic Flow of a Freely Expanding Gas With a Plane Transition Surface (Tables) [Osesimmetrichnoye sverkhzvukovoye techeniye svobodno rasshiryayushchegosya gaza s ploskoy perekhodnoy poverkhnost'yu (tablitsy)]

PERIODICAL: Vychisl. matematika, Nr 2, 1957, pp 45-89

ABSTRACT: Calculation of an axisymmetric supersonic irrotational flow of a freely expanding gas with a plane transitional (sonic) surface. The problem is examined in the coordinates z, χ, where z is constant along the streamlines and χ is constant along the characteristics of the second family. In the vicinity of the transition surface the solution is sought in the form of series according to powers of χ. A system of three ordinary differential equations is obtained for the coefficients of these series. The system is reduced to a third-order equation, the solution of which is tabulated. The remainder of the flow is constructed according to the method of characteristics. Tables are given for the parameters of the flow; the tables

Card 1/2

Axisymmetric Supersonic Flow of a Freely Expanding Gas (cont.) 124-58-9-9624

are computed for four values of the ratio of the specific heats $\varkappa$ ($\varkappa$ = 1.14000, 1.33000, 1.40000, and 1.66667). The tables contain the values of the Mach angle, the angles of inclination of the velocities, the cartesian coordinates and the pressure integrals at the points of intersection of the streamlines and the characteristics of the second family. The tables can be used for the construction of axisymmetric nozzles for jet propulsors cut off at the critical section.

1. Gas flow--Mathematical analysis 2. Supersonic flow--Mathematical analysis
3. Differential equations--Applications

P. P. Koryakov

Card 2/2

KATSKOVA, O.N. (Moskva)

Axisymmetric free expansion of a real gas. Zhur. vych. mat. i mat. fiz. 1 no.2:301-307 Mr-Ap '61. (MIRA 14:8)
(Gas dynamics)

O.N. KATSKOVA

16(1),16(2)

AUTHORS: Leonidov, N.N., and Nakova, N.S. SOV/42-14-1-27/27

TITLE: New Publications on Applied Analysis and Numerical Mathematics (Novyye izdaniya po prikladnomu analizu i vychislitel'noy matematike)

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14, Nr 1, pp 261-265 (USSR)

ABSTRACT: It is stated that in the USSR there exists no periodical on numerical mathematics and similar domains. The papers of these domains chiefly appear in the serie. "Publications on Applied Analysis and Numerical Mathematics" (NPAVM) and in single collected volumes. The series NPAVM began in 1955 and until now it contained the following monographies: 1. G.S.Salekhov "Calculation of Series"; 2. A.N.Khovanskiy "Application of Continued Fractions in the Approximate Analysis"; 3. V.S.Ryaben'kiy, A.F.Filippov "Stability of Difference Equations"; 4. G.S.Khovanskiy "Nomograms"; 5. S.M.Nikol'skiy "Quadrature Formulas"; 6. M.A.Kartsev "Arithmetic Devices of Electronic Digit Apparata"; 7. Yu.V. Vorob'yev "Momentum Method in Applied Mathematics"; 8. Ye.A. Zhogolev, G.S.Roslyakov, N.P.Trifonov, M.R.Shura-Bura "System of Standard-Subprograms".

There appeared the following collected volumes: "Numerical Mathematics and Computing Technics" (VMVT) since 1953, "Numerical Mathematics" (VM) since 1957, and "Computing Technics" (VT) since 1958. Until now two volumes of VMVT appeared with contributions of V.A.Ditkin, L.A.Lyusternik, A.I.Ivanova, A.A.Abramov, M.R. Shura-Bura, V.I.Shestakov, A.I.Vsorova, G.S.Khovanskiy, L.V. Rochek, Ye.N.Dekanoeldse, L.N.Karassina, V.K.Saul'yev, I.M. Stesin, M.A.Tomson, L.I.Gutenmacher, G.K.Kus'minok, L.S.Klabukova. The published three volumes of VM contained contributions of L.A.Lyusternik, Yu.V.Vorob'yev, Ye.A.Volkov, V.K.Saul'yev, I.M.Stesin, A.I.Vsorova, Ya.I.Alikhashkin, G.S.Khovanskiy, S.P. Kapitsa, M.R.Shura-Bura, P.I.Chushkin, O.N.Katskova, Yu.D. Shmyglevskiy, V.S.Linskiy, M.L.Rapoport, B.M.Drozdov, A.G.Gesse, V.S.Vladimirov, L.S.Klabukova, A.I.Vsorova, I.M.Sobol', V.K. Kabulov, O.M.Belotserkovskiy. The first volume of VT contains contributions of O.K.Shcherbakov, F.V.Mayorov, P.P.Golovistikov, Ye.A.Volkov, L.N.Korolev, N.Ya. Matyukhin, O.V.Rosnitskiy, Yu.N. Glukhov, Ye.I.Mamonov.

Besides in 1958 Yu.Ya.Basilevskiy edited the collected volume "Questions of the Theory of Mathematical Machines" ("Voprosy teorii matematicheskikh mashin") with contributions of Yu.Ya. Basilevskiy, I.Ya.Akushskiy, Yu.A.Shreyder, N.A.Glusberg, I.M. Eitenberg, B.I.Rameyev, V.S.Linskiy, L.A.Kosharskiy.

Card 3/3

55

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PHASE I BOOK EXPLOITATION SOV/5212

Katskova, Ol'ga Nikiforovna

Opisaniye sistemy komand elektronnoy vychislitel'noy mashiny BESM-1
(Description of the System of Instructions for the BESM-1 Electronic Computer)
Moscow, 1960. 70 p. 5,000 copies printed.

Sponsoring Agency: Vychislitel'nyy tsentr AN SSSR.

Resp. Ed.: Yu.D. Shmyglevskiy; Ed.: M.V. Yakovkin; Tech. Ed.: A.I. Korkina.

PURPOSE: This book is intended for technical personnel concerned with the development of computers.

COVERAGE: The book contains a brief, general description of the high-speed electronic computer BESM, a three-address universal digital computer which accomplishes an average of 8,000 operations per second. The author presents a detailed description with examples of the system of instructions. No personalities are mentioned. There are no references.

Card 1/3

KATSKOVA, O.N.

16(0);28(2) PHASE I BOOK EXPLOITATION SOV/3366

Akademiya nauk SSSR. Vychislitel'nyy tsentr

Vychislitel'naya matematika; sbornik 3 (Mathematics of Computation; Collection of Articles, Nr 3) Moscow, Izd-vo AN SSSR, 1958. 189 p. Errata slip inserted. 5,000 copies printed.

Resp. Ed.: A. A. Abramov, Candidate of Physical and Mathematical Sciences; Ed.: M. V. Yakovkin; Tech. Ed.: T. P. Polenova.

PURPOSE: This book is intended for applied mathematicians, scientists, and engineers whose work involves computation.

COVERAGE: This book contains 9 articles on computational techniques. The subjects considered include: numerical solutions of the kinetic equation for a sphere; approximate method of solving the Hilbert and Poincaré problem; solution of the Laplace equation in a region within the interior of an ellipsoid; calculating the flow around an arbitrary profile and solid of revolution in a subsonic gas flow (symmetric case); calculating annular supersonic nozzles and diffusers; calculating the lowest characteristic number of Peierls' equation by the Monte Carlo method; study of the oscillation of beams of constant cross section by means of balance type integral equations; calculation of the flow around a circular cylinder with detached shock wave; and new routines for computing finite differences on computers. References accompany each article.

AVAILABLE: Library of Congress

Card 8/8

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D299/D303

26.2161

AUTHORS: Katskova, O.N., and Krayko, A.N. (Moscow)

TITLE: Computating an axisymmetric isentropic flow of a real gas

PERIODICAL: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 2, no. 1, 1962, 125 - 132

TEXT: The design of axisymmetric supersonic nozzles is considered. The experience gained in computating isentropic gas-flow by means of electronic computers, is set forth. A few numerical examples are given. It is assumed that the density ρ and the specific enthalpy h are functions of pressure and temperature only, viz.:

$$\rho = \rho(p, T), \quad h = h(p, T). \tag{1.2}$$

The isentropy condition is

$$\frac{dT}{dp} = h_T^{-1}\left(\frac{1}{\rho} - h_p\right) \tag{1.3}$$

Card 1/6

Computating an axisymmetric ...

where $h_T = \frac{\partial h}{\partial T}$, $h_p = \frac{\partial h}{\partial p}$.

The problem is formulated as follows: Calculate the supersonic section of an axisymmetric nozzle with inflection point A and uniform flow at the exit (Fig. 1), at given temperature and pressure on the flat transition (convergent-divergent) surface. The nozzle with inflection point is called the principal nozzle. The problem is divided as follows: Flow from the transition surface, determination of the cross-section in the (divergent) region OAB, and solution of Goursat's problem for the contour AC and the entire flow in the region ABC from data on the characteristics AB and BC. For the velocity of sound one obtains

$$a^{-2} = \rho_p + \frac{\rho_T}{h_T}\left(\frac{1}{\rho} - h_p\right), \text{ where } \rho_p = \frac{\partial \rho}{\partial p}, \ \rho_T = \frac{\partial \rho}{\partial T}. \qquad (2.1)$$

The first part of the problem is solved by expansion in series, whose coefficients are expressed by the parameter

Computating an axisymmetric ...

$$n = h_T\left\{\left(\frac{1-\rho_p}{\rho_T}\right)^2(h_T\rho_{TT}-\rho_T h_{TT})-\rho_T(1+h_{pp})+\right.$$
$$\left.+2\left[\frac{1-\rho_p}{\rho_T}(h_T\rho_{pT}-\rho_T h_{pT})-h_T\right]+h_T\rho_{pp}\right\}^{-1}; \quad (3.1)$$

where

$$h_{TT}=\frac{\partial^2 h}{\partial T^2},\quad h_{pp}=\frac{\partial^2 h}{\partial p^2},\quad h_{pT}=\frac{\partial^2 h}{\partial p\partial T},\quad \rho_{TT}=\frac{\partial^2\rho}{\partial T^2},$$
$$\rho_{pp}=\frac{\partial^2\rho}{\partial p^2},\quad \rho_{pT}=\frac{\partial^2\rho}{\partial p\partial T};$$

The solution in the regions OAB and ABC is carried out by the method of characteristics. In a form, suitable for computers, the equations of characteristics are:

$$r_3=\frac{r_2-kmr_1+k(x_1-x_3)}{1-km},\quad x_3=x_1+m(r_3-r_1);$$
$$p_3=\frac{1}{NF+ME}\{E[Mp_2+F(\zeta_1-\zeta_2)-K(x_3-x_2)]+F[Np_1-L(r_3-r_1)]\}; \quad (4.1)$$
$$\zeta_3=\zeta_1-\frac{1}{E}[N(p_3-p_1)+L(r_3-r_1)]; \quad (4.1)$$

$$T_3=T_2+T'(p_3-p_2);\quad \beta=\sqrt{w^2a^{-2}-1};\quad w=\sqrt{2\left(h^*+\tfrac{1}{2}-h\right)},$$

Card 3/6

Computating an axisymmetric ...

where m, k, E, F, N, M, L, K and T' are given by expressions. This system of equations is solved by the method of successive approximations, whereby (as a rule) 3 approximations are sufficient. The order of calculation is as follows: From the dimensional quantities p* and T* one determines ρ*, h* and a* by formulas (1.2) and (2.1); these quantities are used to determine the corresponding dimensionless quantities. Then n is determined by formula (3.1) and the characteristic near the transition surface is found. Thereupon the method of characteristics is used. In many problems of interest in practice, the analytical expressions for ρ and h in terms of p and T are very cumbersome. In such cases, it is necessary to first eliminate the temperature from Eq. (1.2) by integrating (1.3). For the required thermodynamic functions one obtains

$$\frac{p}{\rho}=\int_{\ln p^*}^{\ln p} h^{(2)}d\ln p+\frac{p^*}{\rho^*},\quad h=\int_{\ln p^*}^{\ln p}\frac{p}{\rho}d\ln p+h^*,\quad a^2=\frac{(p/\rho)^2}{p/\rho-h^{(2)}}. \tag{6.2}$$

Hence it is expedient to approximate $h^{(2)}$ by the polynomial ln p. Elimination of the temperature involves some changes in the formulas and in the order of computation. Thus, Eq. (3.1) is replaced by

Card 4/[illegible]

Computating an axisymmetric ...

$$n = \left[\frac{h^{(2)} \cdot (1 - 2p) - h^{(3)}}{p^3} - 2\right]^{-1}. \qquad (7.1)$$

At present, the following programs were set up and put into operation on the electronic computer БЭСМ-2 (BESM-2) for a perfect gas, air, and dissociating diatomic gases. The complete program is divided in two: The first part -- computating of AOB -- involves transformation to a dimensionless form, series and calculation by the method of characteristics. The results obtained are recorded on perforated cards or on magnetic tape which are thereupon used in the second part of the program, for computing ABC. In the case of perfect- or diatomic gases, it is not necessary to first eliminate the temperature. In the case of air, however, the temperature is eliminated during the first part of the program. As the polynomial ln p, the polynomial of best approximation has been taken. The program for determining such polynomials, was set up by S.F. Pashkovskiy (of the Polish Academy of Sciences), during his stay at the Computation Center of the AS SSSR. A 65-point scheme was taken on the transition surface; 100 points are taken on the BC-characteristic.

Card 5/10 6

Computating an axisymmetric ...

With such a number of points, 1.15, 1.45 and 1.8 hours are required for the calculation of the OAB region to axis points with a pressure of $10^{-1}p^*$, $10^{-2}p^*$ and 10^{-3} p^*, respectively. The calculation of ABC takes 13 minutes; these calculations apply to a perfect gas. Some of the results are shown in figures. Nozzle contours are compared for hydrogen- and perfect-gas flow. It was found that for air $p^*/p = 1000$, and for a perfect gas $p^*/p = 760$. Thanks are extended to Yu.D. Shmyglevskiy, N.S. Galynn and L.M. Shashkova. There are 9 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: L. Heller, Equilibrium statistical mechanics of dissociating diatomic gases. Phys. Fluids, 1959, 2, no. 2, 147-152; R. Edse, Design of supersonic expansion nozzles and calculation of isentropic exponent for chemically reacting gases. Trans. ASME, 1957, 79, no. 7, 1527-1535.

SUBMITTED: September 20, 1961

Card 6/16

KATSKOVA, Ol'ga Nikiforovna; SHMYGLEVSKIY, Yuriy Dmitriyevich; DITKIN, V.A., prof., otv. red.; KOVAL'SKAYA, I.F., tekhn. red.

[Tables of the parameters of axially symmetric supersonic flow of a freely expanding gas with a plane transition surface]Tablitsy parametrov osesimmetrichnogo sverkhzvukovogo techeniia svobodno rasshiriaiushchegosia gaza s ploskoi perekhodnoi poverkhnost'iu. Moskva, Izd-vo Akad. nauk SSSR, 1962. 363 p. (MIRA 15:9)
(Supersonic nozzles) (Aerodynamics--Tables, etc.)

L 17312-63 EPR/EPA(b)/EWT(1)/EWG(s)-2/BDS/ES(v) AEDC/AFFTC/ASD/
AFWDC/APGC Ps-4/Pd-4/Pw-4/Pe-4 WW
ACCESSION NR: AP3006137 S/0207/63/000/004/0116 0118

AUTHOR: Kats'kova, O. N. (Moscow); Krayko, A. N. (Moscow)

TITLE: Calculation of plane and axisymmetrical supersonic flows in the presence of irreversible processes

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1963, 116-118

TOPIC TAGS: nozzle, contour, characteristic, frozen flow, equilibirum flow, supersonic nozzle, irreversible process, supersonic flow, plane flow, axisymmetrical flow, inviscid flow

ABSTRACT: A finite-difference method has been developed to simplify the numerical solution of the equations of the characteristics for one-dimensional and axisymmetrical supersonic flow of an inviscid, non-heat-conducting gas in the presence of irreversible physicochemical processes. The state of the gas is given by the pressure (p), temperature (T), and n parameters (q_i) characterizing the irreversible processes (e.g., component concentration, internal energy).

Card 1/3

The variation in these parameters is described by the equation:

$$\frac{dq_i}{dx} = F_i(w, \vartheta, p, T, q) = \varphi^i(w, \vartheta, p, T, q)\, f_i(p, T, q),$$

where x and y are rectangular coordinates; w is the absolute flow velocity; ϑ is the inclination angle of the velocity vector relative to the axis x; q is the sum of q_i; and F_i, φ^i, and f_i are known functions of ϑ, p, T, and q. φ^i determines the rate of the irreversible processes. Frozen and equilibrium flow occur at $\varphi^i = 0$ and $\varphi^i = \infty$, respectively. By series expansion of f_{i2} using steps of $(q_{i2} - q_{i1})$, the following finite-difference equation was obtained:

$$q_{i2} = q_{i1} + \frac{(F_{i1} + \varphi_2^i f_{i1}^*)(x_2 - x_1)}{2 - \varphi_2^i f_{i1}^* (x_2 - x_1)},$$

where $f_{i1}^* = (f_{i2} + f_{i1})/2$; $f_{i1} = (\partial f_i / \partial q_i)_{p, T, q_j \neq q_i}$.

Card 2/3

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ACCESSION NR: AP3006137

3

The subscript 3 denotes that arguments p_2, T_2, q_{j2} ($j \neq i$), and q_{i1} are used. The subscripts 1 and 2 denote the known and unknown quantity. The formula was used for calculating the flow of dissociating oxygen in the diverging section of an axisymmetrical nozzle at initial pressure of 1 atm, initial temperature 5000K, and M = 1.001. The results (see Fig. 1 of the Enclosure) indicate that the presence of irreversible reactions leads to quantitative as well as qualitative changes. The formula can be used for calculating nozzle contours for arbitrary types of flow (subsonic, uniform, unsteady, etc.) in the presence of irreversible processes. "The authors are grateful to Yu. D. Shmyglevskiy for his interest in the work and his useful evaluations, and also to G. I. Suchkova for preparing the report." Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 11Apr63 DATE ACQ: 11Sep63 ENCL: 01

SUB CODE: AS, AI NO REF SOV: 001 OTHER: 003

Card 3/3

KRAYKO, A.N.; KATSKOVA, O.N., otv. red.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Variational problems involving supersonic flows of a gas with arbitrary thermodynamic properties] Variatsionnye zadachi sverkhzvukovykh techenii gaza s proizvol'nymi termodinamicheskimi svoistvami. Moskva, Vychislitel'nyi tsentr AN SSSR, 1963. 82 p. (MIRA 16:12)
(Calculus of variations) (Gas dynamics)

KATSKOVA, O.N.; KRAYKO, A.N., RYZHOV, O.S., otv. red.; ORLOVA, I.A., red.

[Calculation of plane and axisymmetrical supersonic flows in the presence of irreversible processes] Raschet ploskikh i osesimmetrichnykh sverkhzvukovykh techenii pri nalichii neobratimykh protsessov. Moskva, VTs AN SSSR, 1964. 42 p. (MIRA 17:6)

KATSKOVA,O.N.;KRAYKO,A.N.;NAUMOVA,I.N. (Moscow)

"Characteristics method for the analysis of equilibrium and non-equilibrium gas flows"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

KATSKOVA, O.N.; SHMYGLEVSKIY, Yu.D., otv. red.; ORLOVA, I.A., red.

[Calculation of equilibrium gas flow in supersonic nozzles] Raschet ravnovesnykh techenii gaza v sverkhzvukovykh soplakh. Moskva, Vychislitel'nyi tsentr AN SSSR, 1964. 59 p. (MIRA 18:2)

ACCESSION NR: AP4010746 S/0020/64/154/001/0026/0029

AUTHOR: Katskova, O. N.; Chushkin, P. I.

TITLE: One scheme for a numerical method of characteristics

SOURCE: AN SSSR. Doklady*, v. 154, no. 1, 1964, 26-29

TOPIC TAGS: numerical computation method, computer, characteristics method, supersonic gas flow, aerodynamics

ABSTRACT: The authors introduce a numerical method of computation of stationary supersonic gas flow in the vicinity of a three-dimensional body in the region between the shock wave and the body surface. The method is devised to replace the three-dimensional method of characteristics or the finite-differences method, which require very complex programming for electronic computers. The equations of the body and the (unknown) equation of the wave are expressed in cylindrical coordinates. A system of equidistant meridional planes (ϕ = const.) is considered, and in the three-dimensional equations of the problem, the func-

Card 1/2

ACCESSION NR: AP4010746

tions are approximated by trigonometric polynomials in ϕ with interpolation nodes in these planes. This reduces the equations to a system of two-dimensional equations in x and ϕ. A two-dimensional method of characteristics is then used. The method is tested by the computation of a supersonic, nonisentropic axial-symmetric flow of a perfect gas in the vicinity of a body of revolution. The accuracy of the method is satisfactory. It can be easily generalized for the case of a real gas in thermal equilibrium. Orig. art. has: 1 figure and 8 equations.

ASSOCIATION: Vy*chislitel'ny*y tsentr Akademii nauk SSSR (Computer Center, Academy of Sciences, SSSR)

SUBMITTED: 23Jul63 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: ME NO REF SOV: 004 OTHER: 001

Card 2/2

Karskova, V. N.

Calculation of equilibrium gas flow in supersonic nozzles (Raschet ravnovesnykh techeniy gaza v sverkhzvukovykh soplakh) Moscow,

Series note: Akademiya nauk SSSR, V chislitel'nyy tsentr

TOPIC TAGS: equilibrium gas flow, supersonic nozzle, annular nozzle, nozzle design

3

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section, as well as in annular nozzles are examined. The ... properly adapted for the computation on ...

Introduction -- 3

Equations ...

... the throat -- 8

Chapter II. ... in the accelerating ...

Card 2/6

1. The method of [illegible]

[illegible] the smoothing portion of [illegible]

2. [illegible] in the discharge section [illegible]

[illegible]

Appendix -- 45

SUB CODE: MM SUBMITTED: 20Oct64 NO REF SOV: 027

OTHER: 000

Card 4/4

AUTHOR: Katskova, O. N. (Moscow); Chushkin, P. I. (Moscow)

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 5, 1965, 903-918

imations with respect to the variable ϕ is developed for the number of meridional planes. A special scheme of the method of characteristics was worked out for determining the flow parameters in which the numerical solution is

in the considered meridional planes [illegible] problems by the method of characteristics [illegible]

SUBMITTED: 29Dec64	ENCL: 01	SUB CODE: MA, AS
NO REF SOV: 008	OTHER: 004	ATD PRESS: 4016

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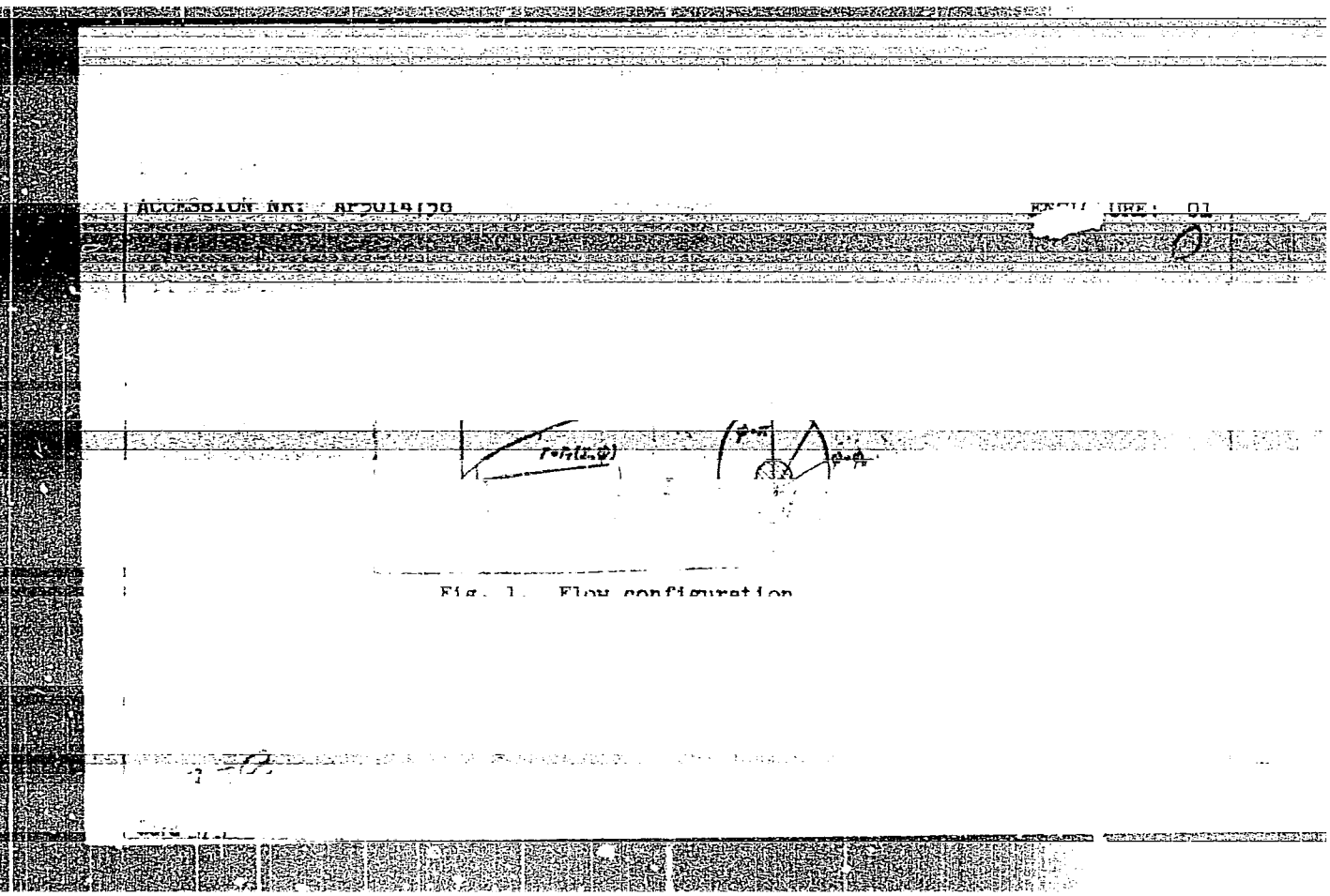

Fig. 1 Flow configuration

SHCHERPETOV, A.V., inzhener; KATSOVICH, A.D., inzhener.

Hydromechanization in mine systems of the Ministry of the Building Materials Industry. Biul.strel.tekh. 9 no.2:22-24 Ja '52.(MLRA 9:4)

1.Stroygidromekhanizatsiya.
(Hydraulic mining)

AUTHOR: Katsovich, A.D. (Engineer) 100-4-14/16

TITLE: Use of hydromechanic methods for rebedding of submerged gas pipelines. (Primeneniye gidromekhanizatsii dlya zaglubleniya gazoprovoda-dyukera).

PERIODICAL: "Mekhanizatsiya Stroitel'stva" (Mechanisation of Construction), 1957, Vol.14, No.4, p.28 (USSR).

ABSTRACT: Report from the U.S.A. describing the rebedding at a lower level of a pipeline running under the Hudson river. 1/1 Details of the method were described in the journal "Der Bauengineer", No.7, 1954.

There are 3 figures.

AVAILABLE:

SHOSTAK, F.T.; BESMAN, V.L.; SHISHLYANNIKOV, L.A.; TSKHAY, A.A.; LYUBMAN M. Ya.; KATSOVICH, F.A.

Study of critical velocities for the labrynth-type electrodializers in the process of water demineralization. Trudy Inst. khim. nauk AN Kazakh. SSR 11:170-175 '64.

KATSOVICH, Sh.

Katsovich, Sh. - "Malarial epilepsy", Sbornik rabot Studench. nauch. o-va Khar'k. med. in-ta, No. 8, 1949, p. 91-96.

SO: U-4110, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 19, 1949),

KATSOYEV, A., general-leytenant artillerii

Rocket gunners on the alert. Starsh.-serzh. no.4(7):2-3 Ap '61.
(MIRA 14:7)
(Rockets (Ordnance))

KATSPRZHAK, YEKATERINA FEDOROVNA

SHTENBERG, Abram Il'ich; GELLER, Grigoriy Moiseyevich; KATSPRZHAK, Yekaterina Fedorovna; VYALKIN, V.I., redaktor; BOLDYREV, T.Ye., professor, redaktor; MOLCHANOVA, O.P., professor, redaktor; SACHEVA, A.I., tekhnicheskiy redaktor.

[Calculation tables on the chemical composition and nutritional value of food products] Raschetnye tablitsy khimicheskogo sostava i pitatel'noi tsennosti pishchevykh produktov. Pod red. T.E.Boldyreva i O.P.Molchanovoi. Moskva, Gos. izd-vo med. lit-ry, 1954. 234 p. (MLRA 8:1)

(Food--Analysis)

KATSTOV O.L.

DECEASED

S/191/63/000/002/002/019
B101/B186

AUTHORS: Golubeva, A. V., ~~Kaistov, O. L. (Deceased)~~, Neymark, O. M. (Deceased), Bezborodko, G. L., Kon, A. V., Usmanova, M. F., Doynikova, S. N.

TITLE: Synthesis and polymerization of styrene derivatives. Synthesis of chloro derivatives of styrene

PERIODICAL: Plasticheskiye massy, no. 2, 1963, 3-6

TEXT: To produce polymers with higher heat resistance than styrene the synthesis of 2,5-dichloro styrene and monochloro styrene was studied, these being intended for use as monomers in the production of new polymers. The initial substance for the synthesis of 2,5-dichloro styrene was p-dichloro benzene ethylated by ethylene or by ethyl chloride, in the presence of $AlCl_3$ to make ethyl-p-dichloro benzene. The synthesis of 2,5-dichloro styrene was attempted in several ways: (1) Chlorination of ethyl-p-dichloro benzene to α-chloro-ethyl-p-dichloro benzene, saponification with Na_2CO_3 to p-dichloro-phenyl methyl carbinol, and dehydration with Al_2O_3 to

Card 1/3

Synthesis and polymerization ...

2,5-dichloro styrene. This method has the disadvantages that α-chloro-ethyl-p-dichloro benzene decomposes on rectification, that two carbinol modifications are obtained, and that the yield is only 25-27%. (2) Dehydrochlorination of α-chloro-ethyl-p-dichloro benzene with $BaSO_4$ or $CaSO_4$ at 350-400°C yielded 65-80% 2,5-dichloro styrene, but the activity of the catalyst decreased rapidly so that frequent regeneration in O_2 at 500°C was necessary. (3) Dehydrogenation of ethyl-p-dichloro benzene with styrene contact catalysts at 600-620°C, 10-12 mm Hg, gave a 39% yield; but at these temperatures HCl was formed as the result of pyrolysis. (4) Acylation of p-dichloro benzene with acetyl chloride, acetic anhydride, or acetic acid according to Friedel-Crafts to p-dichloro acetophenone, reduction of the phenone with aluminum isopropylate to p-dichloro-phenyl methyl carbinol, and dehydration with Al_2O_3 gave a 55-60% yield of 2,5-dichloro styrene. The dehydration was studied at various temperatures in CO_2 and N_2 atmospheres. The reaction products were stable up to 450°C and HCl formed only at higher temperatures. To synthesize monochloro styrene, chloro benzene was acetylated with acetyl chloride or acetic anhydride without a solvent

Card 2/3

S/191/63/000/002/002/019
B101/B186

Synthesis and polymerization ...

to p-chloro acetophenone, then reduced with aluminum isopropylate in isopropanol to p-chloro-phenyl methyl carbinol, and dehydrated with molten $KHSO_4$ or with Al_2O_3 to p-chloro styrene. The quantitative reduction of the ketone succeeded with 50-60% aluminum isopropylate. There are 2 figures.

Card 3/3

S/191/63/000/004/001/015
B101/B186

AUTHORS: Golubeva, A. V., Katstov, G. L. (Deceased), Bezborodko, G. L., Kon, A. V., Usmanova, N. F., Doynikova, S. N.

TITLE: Synthesis and polymerization of styrene derivatives. Polymers of p-chlorostyrene and 2,5-dichlorostyrene

PERIODICAL: Plasticheskiy massy, no. 4, 1963, 4 - 6

TEXT: Mass polymers were produced from styrene, p-chlorostyrene, and 2,5-dichlorostyrene under equal conditions. Their physico-mechanical and dielectric properties were compared. Results:

	Poly-p-chloro-styrene	Poly-2,5-di-chlorostyrene	Polystyrene
average-number molecular weight	340.000	810.000	400.000
impact strength, kg/cm^2	14	6-9	18-20
bending strength, kg/cm^2	900	600	1100
Vicat heat resistance, °C	140-142	150	110
tanδ at 10^6 cps	0.0004-0.0005	0.0002-0.0003	0.0002
breaking voltage kv/mm	25	28	20-22

Card 1/2

Poly-2,5-dichlorostyrene was stable to a 7-day action of 96% H_2SO_4, 34% HCl, 65% HNO_3, 99% CH_3COOH at room temperature, where poly-p-chlorostyrene cracked at these concentrations. Both chlorine derivatives were stable to 60% H_3PO_4, 85% HCOOH, 50% NaOH, oil, glycerol, and gasoline under the above conditions. Optimum conditions for molding, compression molding, and extruding polymers were studied. Poly-2,5-dichlorostyrene was molded at 180 - 190°C, 250 - 300 kg/cm^2, or at 260 - 265°C, 1200 - 1500 kg/cm^2. For poly-p-chlorostyrene, the temperature could be decreased to 175 - 180°C, and 250 - 260°C, respectively. Heat treatment of the pressed samples when kept in a thermostat at 90 - 100°C for several hours, is essential to eliminate cracks. Higher heat resistance makes chlorostyrene derivatives superior to styrene. Their mechanical strength, however, is lower than that of styrene. The only disadvantage of poly-2,5-dichlorostyrene is that HCl is liberated above 250°C. There are 4 figures and 2 tables.

Card 2/2

KATSTOV, Z.M.

Spontaneous thrombosis of the upper mesenteric artery following a bruise of the abdomen after a 38-week pregnancy. Akush. i gin. 33 no.2:100-101 Mr-Ap '57. (MIRA 10:6)

1. Iz akusherako-ginekologicheskogo otdeleniya bol'nitsy Karagandinskoy zheleznoy dorogi.

(PREGNANCY, compl.
thrombosis of upper mesenteric artery after bruise of abdomen)
(ARTERIES, MESENTERIC, dis.
thrombosis of upper mesenteric artery after bruise of abdom. in pregn.)
(THROMBOSIS, in pregn.
upper mesenteric artery after bruise of abdom.)

PEREL'MUTR, A.S.; KATSUBA, M.N.; KSANDROVA, S.Ye.

Universal pneumotachograph. Med. prom. 15 no. 4:43-48 Ap '61.
(MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.
(RESPIRATION) (PHYSIOLOGICAL APPARATUS)

PEREL'MUTR, A. S.; KATSUBA, M. N.; KSANDROVA, S. Ye.

Universal pneumotachograph. Nov. med. tekh. no.1:18-37 '61.
(MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh instrumentov i oborudovaniya.

(RESPIROMETER)

KATSUBA, P.

Resources of Siberia serve communism. Komm. Vooruzh. Sil 4 no.14: 40-44 Jl '64. (MIRA 17:9)

1. Pervyy sekretar' Irkutskogo promyshlennogo oblastnogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza.

KATSULAS, K.; TARZIYEV, Z.

Dodder control. Zashch. rast. ot vred. i bol. 10 no.10:47-48 '65.
(MIRA 18:12)

1. Starshiy agronom Uzbekskoy karantinnoy laboratorii (for Katsulas). 2. Nachal'nik Tashkentskoy karantinnoy inspektsii (for Tarziyev).

KATSULAS, K.Ya.; YEVSTIFEYEV, N.M.

Flame cultivator for controlling dodders. Zashch. rast. ot vred. i bol. 7 no.7:16-19 Jl '62. (MIRA 15:11)

1. Starshiy agronom po sornym rasteniyam Uzbekskoy karantinnoy laboratorii (for Katsulas). 2. Starshiy inzhener Gosudarstvennogo spetsial'nogo konstruktorskogo byuro po khlopku g. Tashkent (for Yevstifeyev).
(Dodder)
(Burning of land)